Logistics Management Institute

Estimating the Military Retirement Health Care Liability

PR003TI

January 2001

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Executive Summary

The Department of Defense provides health care as a retirement benefit to uniformed service members and their dependents and survivors. In fiscal year (FY) 1998 (the most recent year for which data is available) this population numbered 4.3 million. This health care is provided through the direct care system of military medical treatment facilities (MTFs) and via purchased care provided by civilian medical care support contractors. We estimate that DoD spent $4.74 billion in FY98 on retirement health care.

The liability that has accrued over time to current retirees and service members for future retirement health care is significant. Using FY98 data, DoD Office of the Actuary estimates place the figure at a present value of $192.2 billion as of 30 September 1999. This amount is the second largest liability of DoD; it is a required entry on department financial statements.

The liability is actuarially calculated on the basis of the size of the exposed population and current per capita health care costs. The process for generating the exposed population demographic and health care files is complex but straightforward. We rely on the Defense Eligibility Enrollment System (DEERS) for our eligibility and demographic data. Eligibility and beneficiary demographic data are contained in a beneficiary database; sponsor demographics are in a sponsor database. The Defense Manpower Data Center (DMDC) furnishes us with both of these databases. We receive health care workload and cost data from several activities within the Tricare Management Activity and the Office of the Assistant Secretary of Defense (Health Affairs). The direct care system workload and purchased care claims data include every incident of health care delivery (inpatient admissions, outpatient visits, and outpatient prescriptions) in the Defense Health Program.

Using our population databases from DMDC, we attribute workloads from the direct care system and the government share of costs for the purchased care system to each individual beneficiary. We rely primarily on the sponsor's Social Security number (SSN) and the beneficiary's DEERS dependent data suffix to link health care records to beneficiaries. Where we can match only sponsor SSNs, we try to match the beneficiaries' SSNs and the sponsor SSN plus beneficiary sex

and beneficiary date of birth to link health care records to individual beneficiaries. Because we cannot always locate the beneficiary in our population database, we have additional data files for beneficiaries who have DEERS sponsors but are not themselves in the population database. For completeness, we also have files for beneficiaries whose sponsors are not in our population database.

A significant problem in determining MTF health care cost allocations is that unlike institutions in the civilian sector that must bill for their care, MTFs do not have patient-level accounting systems and therefore cannot report the costs of an individual patient's care. We therefore use activity-based costing techniques to apply total program costs to health care workload measures to allocate these total costs to individuals. Once we have attributed MTF workloads to individuals, we sum the total workload delivered in each health care category and divide that total into the total cost of that category, as derived from MEPRS. We then multiply this average cost per workload unit by the number of workload units for each individual in the health care workload databases to fill the direct care cost fields in our health care cost databases. The purchased care cost fields are throughput from the corresponding government cost share fields in the health care workload files.

Once we have filled all of the cost fields, we construct files for use in estimating the MRHL. These files are copies of the health care demographic and health care cost files for beneficiaries in DEERS and beneficiaries with DEERS sponsors with records for retirees, dependents of retirees, and survivors. We turn over these files, along with a population demographic file (with identification data removed) to the DoD Office of the Actuary's health care actuary contractor.

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Chapter 1
Introduction

One of the retirement benefits for U.S. uniformed military service members is health care for the retiree, the retiree's dependents, and survivors of retirees.[1] This care is available through the direct care system of military medical treatment facilities (MTFs) and through the purchased care network of civilian providers under the Tricare program. In fiscal year 1998, 4.32 million people were eligible for military retirement health care (of a total eligible DoD population of 8.47 million).

Providing health care to that many people costs a significant amount of money. We estimate that DoD spent $4.74 billion on retirement health care in FY98. Determining this cost precisely is difficult. Unlike civilian hospitals, which must bill for their care, MTFs do not have accounting systems that allow for identification of individual patient costs (patient-level accounting).

The Chief Financial Officers Act requires federal agencies to publish annual financial statements. These financial statements include summaries of assets and liabilities. Military retirement health care is the second-largest DoD liability.

Conceptually, grasping the concept of the military retirement health care liability (MRHL) may be easier by thinking of the retirement health care benefit as having a value that accrues to a service member during his or her military career until he or she becomes eligible to draw the benefit. DoD's liability has built up over the years and is composed of two parts. The first part of the liability is to current service members who will eventually retire for the portion of their benefit that they already have earned with their service to date. The second part of the liability is to current retirees and their dependents and survivors for the portion of their benefit that will be delivered in future years.

DoD calculates the MRHL by estimating current spending per capita on retirement health care by demographic group. These groups are sponsor age blocks within one of 10 population vectors. Each vector is defined by sponsor demographics. A projected cost growth rate is then applied to estimate per capita costs for each group in future years. DoD actuarially estimates the size and demographics of the retired population for each year into the future during the predicted lifetimes of all current beneficiaries. Then-year per capita costs are then applied to the population estimates of each age block in each group to determine

[1] Although we use the term *health care*, in this report the term refers to medical care only; it excludes dental care. Retiree dental care represents a very small proportion (approximately 3 percent) of total dental costs and thus a very small portion of the total retirement health care benefit. Because so little retirement dental health care is delivered, we exclude it from our analysis.

total annual costs for each year in then-year dollars. The annual costs in then-year dollars are then discounted at rates approved by the DoD Board of Actuaries to yield a present value of the future liability in current-year dollars. This liability is shown in the DoD financial statement.

The most difficult part of this process is determining current direct care per capita costs in the absence of patient-level accounting at MTFs. We apply activity-based costing (ABC) techniques to estimate spending for each individual. We identify activities and map MTF costs to these activities. We also accumulate purchased care costs to determine total health care costs. This report documents the process we used in calendar year 2000, with primary attention on the process of estimating current per capita health care costs. Because of the very dynamic nature of the numerous data systems we use for input data this process is constantly changing.

BENEFIT DESCRIPTION

Understanding the process of determining per capita spending requires a basic understanding of the military retirement health care benefit. The benefit is provided by DoD through two sources: direct care in MTFs and purchased civilian care.

Direct Care

Inpatient and outpatient care is provided directly by military hospitals and clinics operated by the three military Services. MTFs are located on or near military installations. MTFs vary widely in size, from small outpatient clinics to major teaching medical centers. They are funded directly by DoD and are staffed with uniformed military personnel and DoD civilian employees. A hospital commander may bring in contract medical personnel to take advantage of under-utilized hospital plant capacity. Care in MTFs is available on a space-available basis for retirees, dependents, and survivors. The priority for care, in descending order, is active duty personnel; dependents of active duty personnel; retired and survivor Tricare Prime (see next section) enrollees; and other retirees, their dependents, and their survivors. In MTFs, outpatient care and pharmaceuticals are free and inpatient care costs $8.00 per day for retirees.

Purchased Care

The purchased care program has three parts: Tricare, the National Mail Order Pharmacy (NMOP), and the Uniformed Services Family Health Program (USFHP).

TRICARE

Tricare is an outgrowth of the former Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). Tricare provides the option of medical care

from civilian providers to dependents of active duty personnel, retirees and their dependents, and survivors. The program is regionally based; there are 13 regions worldwide. Each region has a Tricare contractor that establishes a network of civilian providers. Currently, eligibility for care under Tricare ends when the beneficiary becomes eligible for Medicare.[2] For retirees and survivors, the program has enrollment fees, deductibles, and copayments, depending on the family's level of participation.

There are three levels to Tricare:

1. *Tricare Prime*, a health care maintenance organization (HMO). In order to participate eligible beneficiaries must enroll in Tricare Prime, which assumes the role of primary provider. Each enrollee is assigned a primary care manager, who can be a military or civilian provider. The primary care manager serves as the gateway to the system, making initial diagnoses and determining when to refer the patient to specialists. Enrollees are required to use military or network health care providers. There is an annual enrollment fee for retirees and survivors; care is provided at a nominal cost (e.g., $12.00 per outpatient visit).

2. *Tricare Extra*, a preferred provider organization (PPO). Tricare Extra requires no enrollment but has an annual deductible, and the patient pays a 20 percent (for retirees) copayment for outpatient visits to civilian providers. The Tricare Extra program requires patients to use providers in the Tricare regional contractor's provider network to get this copayment rate.

3. *Tricare Standard*, a fee-for-service (FFS) program. Under Tricare Standard, retirees are free to choose their civilian provider but must pay a higher copayment (25 percent for outpatient visits).

NATIONAL MAIL ORDER PHARMACY

The NMOP program allows eligible beneficiaries to mail prescriptions to a central contractor and receive medications by return mail. Beneficiaries can enroll in the program and order refills via the Internet or by mail. There is no enrollment fee for retirees and survivors, but there is an $8.00 copayment per prescription.

UNIFORMED SERVICES FAMILY HEALTH PROGRAM

USFHP is a health care option for eligible beneficiaries who live in the Northeast Atlantic coast area; Corpus Christi, Texas; or Seattle, Washington. USFHP is an HMO alternative to Tricare Prime. Medically necessary care is covered by the plan, including coverage for prescription drugs. Medical centers are operated by

[2] The National Defense Authorization Act for Fiscal Year 2001 changed the benefit to allow beneficiaries who are eligible for Medicare to participate in Tricare and also makes Tricare a secondary payer to Medicare, effective October 1, 2001.

individual contractors in each area. USFHP has the same enrollment fees and visit charges as Tricare Prime.

CALCULATING CURRENT HEALTH CARE SPENDING

To calculate per capita spending for each demographic group, we must determine how many people are in each group and how much DoD has spent on them. We track costs for each person who is eligible for DoD health care whose sponsor is an active-duty, living retired, or deceased retired military member of the Army, Navy, Air Force, or Marine Corps. These costs include an allocation of direct care costs according to the amount of care delivered and the government's share (including contractor indirect and overhead costs) of purchased care costs.

One characteristic of DoD health care is that people are constantly coming into and leaving the system, so there is constant turnover during the year. This turnover amounts to about 10 percent of the total population during the year.

Because the desired metric is the average cost per member of each demographic group, this turnover requires that we divide total annual health care costs for the group by the average number of people in the group. With this turnover, some members who incur health care costs during the year are not members for the entire year.

To allow for this possibility, we construct two databases. The first database is for population counts, the second to track health care costs. The population database is composed of all eligible beneficiaries at the end of the fiscal year. We take this population to represent the average population over the course of the entire year. The DoD Office of the Actuary uses this approach in calculations for military retirement pay. This data file contains data for the sponsor and beneficiary.

We would prefer to have a record for everyone who was eligible for DoD health care during the year. Because that level of detail is impractical, we approximate by merging the populations at the start of the year and at the end of the year. This calculation captures persons who are in the system for the full year, those who are in the system at the start of the year and leave before the end of the year, and those who enter the system during the year and are in the system at the end of the year. We miss those who enter and leave during the same year. We believe that this number is negligible and does not affect the outcome of our calculations.

We have a record for every individual in the health care database that was eligible for care at the start or end of the year. In addition to the same demographic data fields in the population database, each person's record has 15 data fields in which to accumulate that person's health care costs during the year.

Purchased cost data are straightforward. We accumulate the government's share of costs for each episode of care or prescription separately for Tricare Prime, Extra, and Standard, broken down into inpatient care, outpatient care, and outpatient pharmaceuticals. We also accumulate NMOP and USFHP costs separately.

For MTF care, because we do not have dollar cost figures for care delivered to each individual, we accumulate inpatient and outpatient workloads expended and the cost of pharmaceuticals for that person in separate fields. Later, we multiply the contents of the workload fields by average costs per workload units to get cost allocations for each person.

Chapter 2
Input Data

The data required for estimating current per capita spending for military retirement health care fall into two broad areas: demographic and health care delivery. In this chapter we overview the input data elements and generally describe how we use individual data elements. We provide detailed descriptions of data processing in subsequent chapters.

We receive source files from the Defense Manpower Data Center (DMDC); Tricare Management Activity (TMA) Headquarters; the U.S. Army Medical Information Service Support Activity (USAMISSA), Ft. Detrick, MD; and the Tri-Service Medical Systems Support Center (TMSSC), San Antonio, TX. Detailed layouts, sources, and points of contact for each file appear in Appendix A.

We build our population demographic and health care databases from eligible population data provided by DMDC. DMDC extracts these data from the Defense Eligibility Enrollment System (DEERS). To track each individual, DMDC assigns a family member identifier—the DEERS Dependent Data Suffix (DDS)—to each member of a sponsor's family.[1] Our primary link between the health care delivery records and population data is the combination of sponsor's Social Security number (SSN) and the DDS, which together uniquely identify any individual.

Demographic Data

We gather demographic data for individual beneficiaries and their sponsors. A beneficiary is someone who is entitled to health care through DoD. For our purposes, beneficiaries can be active-duty or retired military personnel, dependents of active or retired military personnel, and survivors of military personnel who were retired or eligible for retirement at the time of their death. A sponsor is the military service member whose service entitles the beneficiary to care. Our sponsors include living military members and deceased members with survivors who are eligible for DoD health care.

We have two input demographic databases—one for beneficiaries and one for sponsors.

[1] DMDC assigns DDS numbers according to the following protocol: sponsors *20*, spouses *30–39*, children *01–19*. There are other sequences for other categories of dependent (e.g., parents, parents-in-law). Numbers are assigned sequentially: The oldest child is 01, the next-oldest is 02, and so forth.

Beneficiary data are personal for each individual. Because there is only one sponsor per family, separating sponsor and beneficiary files conserves file space. Table 2-1 shows the data fields in the beneficiary database.

Table 2-1. Beneficiary Data Fields

Field contents	Field width	Remarks
DDS	2	
Sponsor SSN	9	
Beneficiary SSN	9	
Beneficiary sex	1	M, F
Beneficiary relationship to sponsor	1	1–Self, 2–Spouse, 3–Child, 4–Parent, 5–Other/Unknown
Beneficiary date of birth	8	4-digit year, month, day (YYYYMMDD)
Beneficiary eligibility for Tricare	1	Y, N
Beneficiary eligibility for Medicare	1	Y, N
Beneficiary residence postal Zip code	5	
Beneficiary Tricare region	2	01-11
Beneficiary DEERS eligibility code	1	Same values as DEERS: 0–9, L, N, P
Beneficiary DEERS begin eligibility date	8	4-digit year, month, day (YYYYMMDD)

Sponsor data consist of data that are related to the sponsor, which generally are of a military nature. Table 2-2 shows sponsor data fields.

Table 2-2. Sponsor Data Fields

Field contents	Field width	Remarks
Sponsor SSN	9	
Sponsor date of birth	2	4-digit year, month, day (YYYYMMDD)
Sponsor status	1	Active duty, retired, deceased
Sponsor Service	1	Army, Navy, Air Force, Marine Corps
Sponsor pay grade	1	Officer, enlisted
Sponsor component	1	Active, Reserve, not retired
Sponsor disability status	1	Nondisabled, temporarily disabled, permanently disabled
Sponsor postal Zip code	5	
Sponsor DEERS eligibility code	1	Same values as DEERS: 0–9, L, N, P

HEALTH CARE DELIVERY DATA

Health care delivery data can be divided into two categories: level-of-effort data—which measure the amount of health care delivered—and cost data, which show the costs of the care delivered.

Health Care Level-of-Effort Data

We receive several data files for the direct care and purchased care systems. Each file contains one record for each episode of MTF care or prescription or purchased care claim. These files include the following data:

- *MTF inpatient workloads*
- *MTF outpatient clinic visits and procedures*
- *MTF outpatient prescriptions*
- *Tricare inpatient care costs*
- *Tricare outpatient care costs*
- *Tricare outpatient prescriptions*
- *NMOP prescriptions*
- *USFHP enrollees and costs.*

Each record includes fields that identify the beneficiary, provide backup demographic information (used if necessary to help identify the beneficiary), date and type of care delivered, and amount of care or cost of prescription delivered. Appendix A contains detailed file layouts. Typical fields in an input file are the following:

- *Beneficiary identification*
- *Backup demographic information*
- *Date and type of care delivered*
- *Amount of care delivered (level of effort)*
- *Audit information.*

Direct Care Level-of-Effort Data

Because MTFs do not have patient-level cost accounting, we use workload expended, based on data contained in MTF files, to allocate shares of total MTF costs.

MTF workload is measured in nondimensional units:

- *Inpatient relative weighted products (RWPs), which are based on adjusted length-of-stay and are standard measures in the health care industry*
- *Ambulatory workload unit (AWU), which is a relative measure that is based on average cost per visit, by clinic type*
- *Ambulatory patient groups (APGs), which are based on procedures performed*
- *Fill cost, which is the government's purchase cost of a prescription filled by an MTF.*

None of these workload units bears a quantitative relation to another. We cannot say, for example, that an AWU represents a specific number of RWPs.

Purchased Care Level-of-Effort Data

We measure levels of effort for the purchased care system by using the government share of the health care episode or prescription cost. Civilian care under Tricare is documented on the Health Care Standard Record (HCSR). A HCSR is generated for each episode of care provided by Tricare regional contractors. We receive an electronic file that contains a record for every HCSR. Along with patient identification and demographic information, this file includes a field containing the government's share of the cost of the care documented on the HCSR. Appendix A contains a detailed file layout.

Level-of-effort data are unnecessary for the USFHP because the government pays a fixed per capita rate for each enrollee to USFHP contractors. We receive a data file of individual prescriptions and their cost for the NMOP program.

Health Care Cost Data

The cost data for the direct care system consists of the overall operating costs of the direct care system. Cost data for the purchased care system consist of contract indirect and overhead costs and government in-house costs to manage the contracts.

DIRECT CARE COST DATA

We base MTF care costs for individual beneficiaries on the workload delivered. To attach a cost to each workload unit, we simply divide the total MTF cost for a category of care (inpatient, outpatient, and pharmacy) by the sum of all workload units for that category.

As the basis of our MTF operating costs, we use the Medical Expense and Performance Reporting System (MEPRS). Each MTF is made up of work centers for cost accounting purposes. MEPRS is an MTF work center-based management information system that is designed to support management at the MTF level. There are additional MEPRS accounts for activities outside a work center (e.g., patient transportation). MEPRS costs cannot be tied to individual appropriations.

MEPRS tracks costs with a Uniform Chart of Accounts (UCA). The UCA has seven basic accounts, lettered A to G:

- A–*Inpatient Care*
- *B–Ambulatory Care*
- *C–Dental Care*
- *D–Ancillary Services*
- *E–Support Services*
- *F–Special Programs*
- *G–Readiness.*

MEPRS includes non-health care costs such as veterinary services, environmental inspections, and military readiness in the F and G accounts. It does not include some categories of personnel costs, such as civilian fringe benefits and military variable housing allowance, along with capital expenditures and centralized costs. Before turning MEPRS cost data over to LMI, TMA Headquarters allocates the D and E accounts to the other accounts, then subtracts non-health care costs and adds excluded costs.

The TMA allocates excluded costs to the primary accounts. For MTF capital expenditure costs, the TMA uses a 10-year running average cost for military construction (MilCon) and major equipment purchases funded under other procurement (OP) obligations. The running average smoothes the significant annual variations in these categories.

We use the burdened total impatient, ambulatory, and outpatient pharmacy costs in our calculations.

PURCHASED CARE COST DATA

In addition to the direct costs of contract civilian health care, there are contractor indirect and overhead costs, the costs of pilot and demonstration projects, and government in-house costs to administer the contract civilian care program. These costs are allocated to costs in the HCSR file on a proportional basis. We obtain the Tricare contractor costs from the individual contract line item numbers in the cost section (Section B as currently modified) of each managed care support contract. The other data are contained in the TMA Budget Execution Summary.

Chapter 3
Data Processing

In this chapter, we describe the operations we perform on our input data to generate our output files. Where appropriate, we illustrate these operations with figures of small sample files. For space and page width considerations, our sample figures show only the fields germane to the operation under discussion.

INPUT FILE CONVERSIONS AND INTEGRITY CHECKS

Generally, our input source files are in ASCII text format, with fixed record lengths, and on compact disc media. We use the latest version of the Microsoft Visual FoxPro database management software (currently version 6.0) for our data processing. We convert source text files into FoxPro database files (.dbf file extension), then run checks for data integrity and consistency. Where needed, we correct format inconsistencies. In some files, for example, SSNs appear with leading blanks instead of leading zeros, as if they were cardinal numbers; we replace the blanks with zeros. Where there are data inconsistencies (e.g., a numeric field containing alphabetic characters) or damaged source files, we ask the appropriate point of contact for a replacement file.

We also run extensive checks on input files for consistency and credibility. Most of these checks are on the population demographic files we receive from DMDC. We focus on these files because we rely on the demographic data for the population and health care files and because we are not in a position to check the health care files for accuracy.

We check all of the data fields that feed our output files for contents. We seek to ensure that the field contents match the values or entries that we expect. For example, we check to ensure that the sex field contains only *M* or *F*. We count the occurrence of each data element. For example, the field for dependent children should have approximately the same number of males and females, whereas spouses will be predominately female and sponsors predominately male. We expect to see population counts for each birth year increase as the birth years increase. We look for obvious errors in birth years, such as dates that are more than 110 years ago or less than 18 years ago for living sponsors and spouses.[1] We also check to ensure that there is a sponsor for each beneficiary.

[1] Sponsor ages hypothetically could exceed 110 years because we include deceased sponsors for surviving beneficiaries. Sponsors could marry considerably younger persons who would survive to very old age while retaining their eligibility for health care. For example, if a 60-year-old retired sponsor had married a 30-year-old person who retained benefits while reaching age 90 today, the sponsor would be in the Sponsor database with a birthdate of 120 years ago.

In each sponsor demographic data file, we encounter a small number of records with duplicate sponsor SSNs. In FY98, of a total of 4,121,995 records, 619 SSNs were duplicated in 674 records (some SSNs had more than one duplicate). In most of these cases, the records with duplicate SSNs obviously are for the same person, with some minor difference in a data field (one record with Service = *A* [Army], the duplicate with Service = *F* [Air Force]) or a birthdate difference (November 12 [11/12] and December 11 [12/11]). We have no way of knowing which record is correct, so we use the data from the first record. If a field in the first record is empty, we use the data from the second record. If the field in the second record is empty, we use the data in that field in the third record, if there is one.

OUTPUT FILE CREATION

We have two output data sets: one for population counts according to demographics and the other to accumulate health care workloads and costs. The reason we have two sets is that the population data set contains records for beneficiaries who are eligible at the end of the year. We take the counts we derive from this file as representative counts over the course of the entire year.

Our period of analysis is the fiscal year—October 1 to September 30. There is, however, a turnover of about 10 percent of the beneficiaries every year. If we used only the beneficiaries in the end-of-year population count file to accumulate our health care costs, we would miss people who had lost their eligibility during the year who had incurred health care costs before losing their eligibility. To capture the health care delivered to beneficiaries who were not present at the end of the year, our health care data set contains records for beneficiaries who were eligible for care at the start and/or the end of the year.[2] The health care data set also contains demographic data duplicating that in the population file, in order that we can attribute health care costs to the correct demographic category.

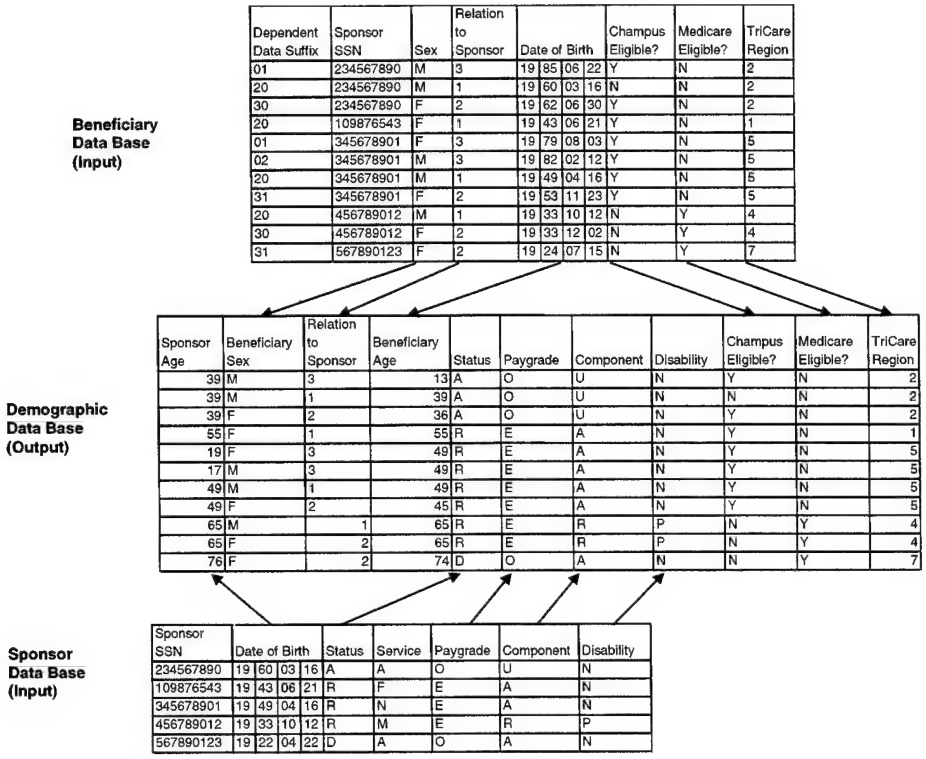
Population File Creation

Our population file of demographic data (*demog.dbf*) includes all eligible beneficiaries on 30 September of the analysis year.[3] This file is a "snapshot" on that date; it enables us to develop counts of exposed population in various demographic categories. *Demog.dbf* is a merge of the beneficiary file (*bf.dbf*) and the sponsor file (*sp.dbf*) for the analysis year. The exception is that *demog.dbf* contains ages in years to the birthday nearest September 30 instead of birthdates. Once we build this file, we do not operate on it further. Figure 3-1 shows how the beneficiary and sponsor files are merged to form *demog.dbf*.

[2] This approach will miss beneficiaries who gain *and* lose their eligibility in the same year. An example would be infant deaths.

[3] Generally, the actual file names include the fiscal year of the data: The demographic file for FY99 data will be named *demog99.dbf*. For clarity and simplicity, we drop the trailing numbers in this report.

Figure 3-1. Beneficiary and Sponsor File Merge into Demographic File



Health Care File Creation

For 2000, our health care output data set consists of three "flat" (single, two-dimensional) database files that contain health care demographic data, health care workloads, and health care costs. We have three files because the amount of data is too great for a single file in Visual FoxPro 6.0. All three files have the sponsor SSN and beneficiary DDS. There is one record in each file for each person who was eligible for military medical care at the start or the end of the year and whose sponsor is on active duty (including full-time Guard and Reserves), retired, or deceased after retiring or becoming eligible to retire. So that we can use the data for comparative analyses between active and retired/deceased populations and properly allocate fixed Tricare costs, our health care files contain *all* eligible beneficiaries. Our actual military retirement health care liability vectors contain only beneficiaries with retired or deceased sponsors.

Because our input and output files contain SSNs and DDSs, they are protected by the Privacy Act of 1974. LMI has a Data Use Agreement (DUA) with the TMA that covers the data it provides. A copy of the DUA appears in Appendix B. Under the terms of the DUA, data files in LMI's custody are treated as sensitive personal data, and access to any data files containing beneficiary identification information is limited to authorized task personnel.

We turn over all three files in their entirety to the DoD Office of the Actuary—a government agency with a requirement for this information. Where actuarial calculations are carried out by other contractors, we turn over only the health care demographic and health care cost files, after removing the SSN and DDS fields. This arrangement provides the quantitative data required for actuarial calculations without revealing individual identification data.

Table 3-1 shows the file layout of the health care demographic file.

Table 3-1. Health Care Demographic File Layout

Field name	Field width	Remarks
Dependent Data Suffix	2	
Sponsor SSN	9	
Beneficiary SSN	9	
Sponsor age/years since birth	3	Years to birthday nearest 30 Sept.
Sponsor service	1	Army, Navy, Air Force, Marine Corps
Sponsor status	1	Active duty, retired, deceased, other
Sponsor pay grade	1	Officer, enlisted
Sponsor component	1	Active retired, Reserve retired, not retired, other
Sponsor disability	1	Nondisabled, temporary disability, permanent disability
Sponsor DEERS eligibility code	1	Same values as DEERS: 0–9, L, N, P
Beneficiary age	3	Years to birthday nearest 30 Sept.
Beneficiary sex	1	M/F
Beneficiary relationship to sponsor	1	1 = sponsor, 2 = spouse, 3 = child, 4 = parent, 5 = other/unknown
Beneficiary Tricare eligible?	1	Y/N
Beneficiary Medicare eligible?	1	Y/N
Beneficiary Tricare region	2	01-13
Beneficiary residence postal Zip code	5	
Beneficiary DEERS eligibility code	1	Same values as DEERS: 0–9, L, N, P
Beneficiary begin eligibility date	2	Date beneficiary DEERS eligibility started

Table 3-2 shows the file layout of the health care workload file.

Table 3-2. Health Care Workload File Layout

Field name	Total field width	Decimals	Remarks
Dependent Data Suffix	2	0	
Sponsor SSN	9	0	
Total MTF inpatient RWPs	8	4	
Total MTF outpatient AWUs	8	4	
Number MTF outpatient visits with AWU value greater than 0	4	0	
Total MTF outpatient APG RVUs	10	4	
Number MTF outpatient visits with APG RVU value greater than 0	4	0	
Total fill cost of all MTF outpatient prescriptions	10	2	$$.cc
Tricare Prime inpatient government share	10	2	$$.cc
Tricare Extra inpatient government share	10	2	$$.cc
Tricare Standard inpatient government share	10	2	$$.cc
Tricare Prime outpatient government share	9	2	$$.cc
Tricare Extra outpatient government share	9	2	$$.cc
Tricare Standard outpatient government share	9	2	$$.cc
Tricare Prime outpatient pharmacy government share	9	2	$$.cc
Tricare Extra outpatient pharmacy government share	9	2	$$.cc
Tricare Standard outpatient pharmacy government share	9	2	$$.cc
Tricare MTF Supplemental health care cost	10	2	$$.cc
Tricare MTF Supplemental pharmacy cost	10	2	$$.cc
NMOP total government prescription cost	9	2	$$.cc
USFHP government capitation cost	9	2	$$.cc

Table 3-3 shows the file layout of the health care cost file.

Table 3-3. Health Care Cost File Layout

Field Name	Width	Decimals	Remarks
Dependent Data Suffix	2	na	
Sponsor SSN	9	na	
MTF inpatient cost allocation	10	2	$$.cc
MTF outpatient cost allocation using AWUs	10	2	$$.cc
Number MTF outpatient visits with AWU value greater than 0	4	0	
MTF outpatient cost allocation using APG RVUs	10	2	$$.cc
Number MTF outpatient visits with APG RVU value greater than 0	4	0	
MTF outpatient pharmacy cost allocation	10	2	$$.cc
Tricare Prime inpatient government share	10	2	$$.cc
Tricare Extra inpatient government share	10	2	$$.cc
Tricare Standard inpatient government share	10	2	$$.cc
Tricare Prime outpatient government share	9	2	$$.cc
Tricare Extra outpatient government share	9	2	$$.cc
Tricare Standard outpatient government share	9	2	$$.cc
Tricare Prime outpatient pharmacy government share	9	2	$$.cc
Tricare Extra outpatient pharmacy government share	9	2	$$.cc
Tricare Standard outpatient pharmacy government share	9	2	$$.cc
Tricare MTF supplemental health care cost	10	2	$$.cc
Tricare MTF supplemental pharmacy cost	10	2	$$.cc
NMOP total government prescription cost	9	2	$$.cc
USFHP government capitation cost	9	2	$$.cc

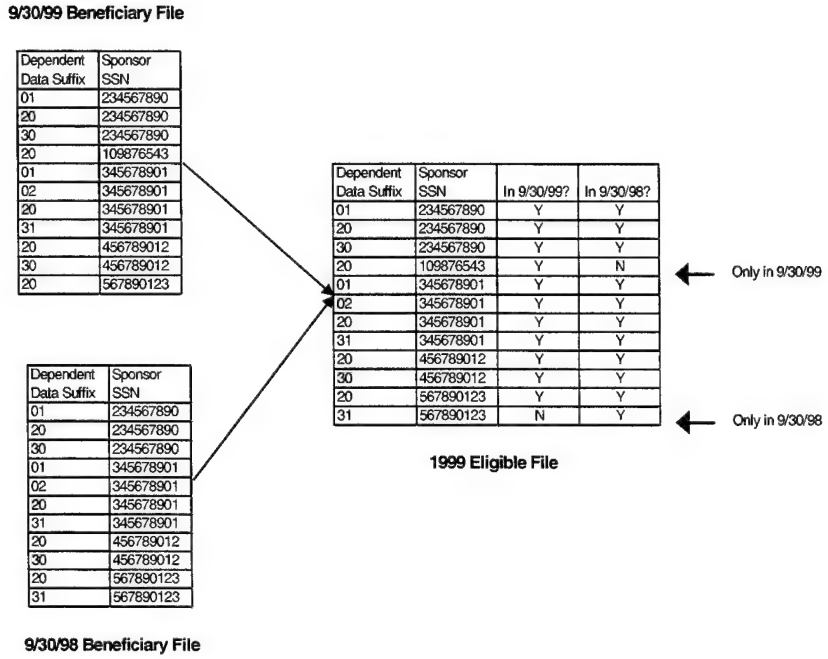
Eligible Beneficiaries File

Our first step in creating the health care output files is to develop a temporary file (*elig.dbf*) of sponsor SSNs and DDSs, with one record for each eligible beneficiary. Because we want to be as comprehensive as possible in our cost accounting, we develop *elig.dbf* to capture individuals who are eligible at the start of the year and the end of the year.

Elig.dbf is a merge of the sponsor SSN and DDS fields from the beneficiary files (*bf.dbf*) for the analysis year and the previous year, with one record for each eligi-

ble beneficiary.[4] After we develop *elig.dbf*, we copy the sponsor SSN and DDS fields into our three health care output files. Figure 3-2 shows how the 9/30/99 *elig.dbf* file is built from the 9/30/98 and 9/30/99 beneficiary files.

Figure 3-2. Merging 9/30/98 and 9/30/99 Beneficiary Files into 1999 Eligible File



Notice in Figure 3-2 that the beneficiary with DDS = 20 and sponsor SSN = 109876543 is only in the 9/30/99 beneficiary file and that the beneficiary with DDS = 31 and sponsor SSN = 567890123 is only in the 9/30/98 beneficiary file. Because both were eligible for benefits at some time during the year, however, both appear in the 1999 eligible file.

We build *elig.dbf* and then add in beneficiary file demographic data instead of merging the two beneficiary files directly to save computer memory and processing time. We copy the sponsor SSNs and DDSs from *elig.dbf* into our output files and then link them to other input data files and import and accumulate data.

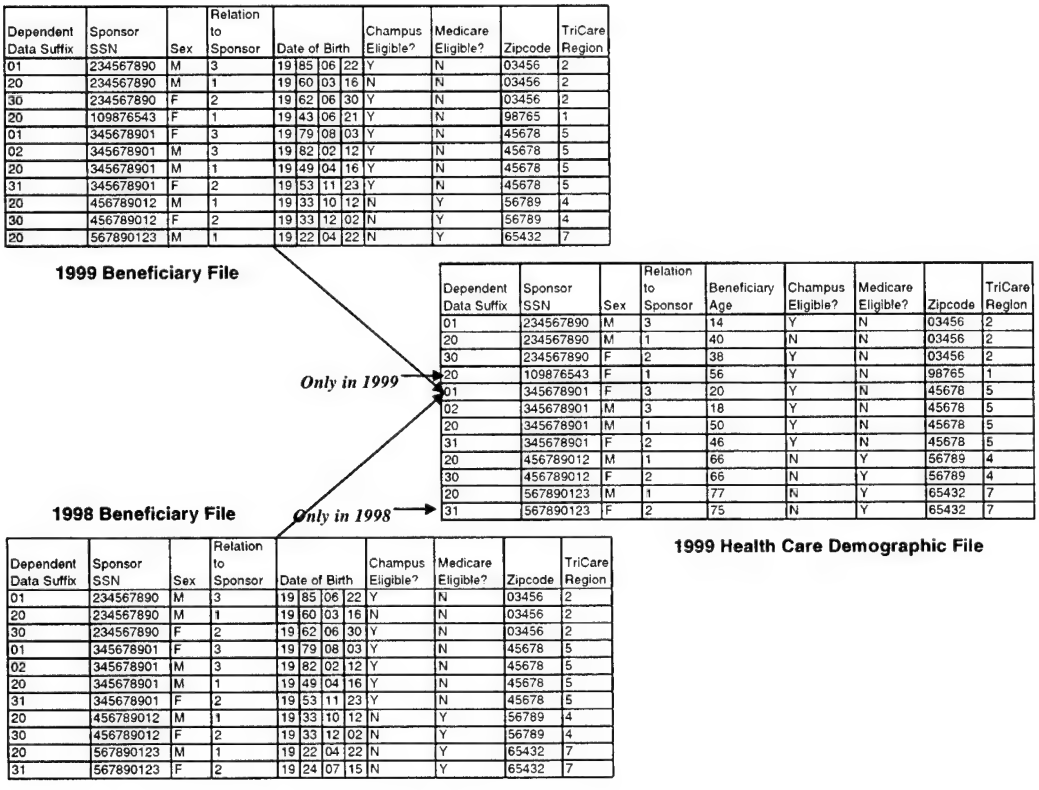
[4] DMDC provides files as of September 30th of each year. We use the files for the end of the previous year for data as of the beginning of the analysis year. For example, for the FY99 analysis year, we used the September 30, 1999, files as the end-of-year files and the September 30, 1998, files as the start-of-year files.

Copying Beneficiary and Sponsor Demographic Data

After importing the sponsor SSNs and DDSs from *elig.dbf* into the health care demographic file, we next link the health care demographic file to the beneficiary file for the start of the analysis year, using sponsor SSNs and DDSs. With this link established, we can import demographic data from beneficiary file records into the corresponding records in the health care demographic file. We then link the health care demographic file to the beneficiary file for the end of the analysis year and import the end-of-year demographic data. During this process, we calculate the age in years to the nearest birthday as of 30 September of the analysis year from the birth dates contained in the beneficiary file. If a beneficiary is in both the start-of-year and the end-of-year beneficiary files, the end-of-year data overwrites the start-of-year data.

Figure 3-3 shows how data from 1998 and 1999 beneficiary files are merged into the 1999 output file. Note that one beneficiary (sponsor SSN = 109876543, DDS = 20) is found only in the 1999 beneficiary file, and another beneficiary (sponsor SSN = 567890123, DDS = 31) is found only in the 1998 beneficiary file.

Figure 3-3. Merging 1998 and 1998 Beneficiary Data into 1999 Health Care Demographic File



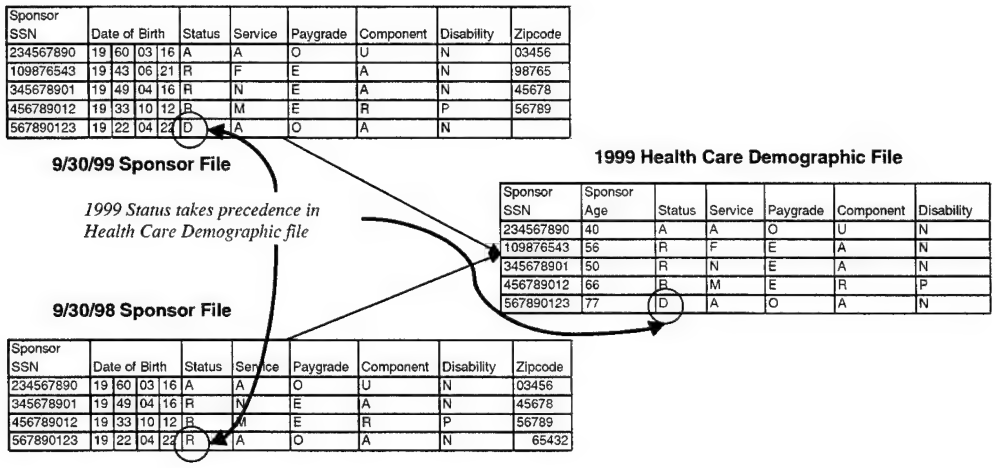
Dependent Data Suffix	Sponsor SSN	Sex	Relation to Sponsor	Date of Birth	Champus Eligible?	Medicare Eligible?	Zipcode	TriCare Region
01	234567890	M	3	19 85 06 22	Y	N	03456	2
20	234567890	M	1	19 60 03 16	N	N	03456	2
30	234567890	F	2	19 62 06 30	Y	N	03456	2
20	109876543	F	1	19 43 06 21	Y	N	98765	1
01	345678901	F	3	19 79 08 03	Y	N	45678	5
02	345678901	M	3	19 82 02 12	Y	N	45678	5
20	345678901	M	1	19 49 04 16	Y	N	45678	5
31	345678901	F	2	19 53 11 23	Y	N	45678	5
20	456789012	M	1	19 33 10 12	N	Y	56789	4
30	456789012	F	2	19 33 12 02	N	Y	56789	4
20	567890123	M	1	19 22 04 22	N	Y	65432	7

Dependent Data Suffix	Sponsor SSN	Sex	Relation to Sponsor	Beneficiary Age	Champus Eligible?	Medicare Eligible?	Zipcode	TriCare Region
01	234567890	M	3	14	Y	N	03456	2
20	234567890	M	1	40	N	N	03456	2
30	234567890	F	2	38	Y	N	03456	2
20	109876543	F	1	56	Y	N	98765	1
01	345678901	F	3	20	Y	N	45678	5
02	345678901	M	3	18	Y	N	45678	5
20	345678901	M	1	50	Y	N	45678	5
31	345678901	F	2	46	Y	N	45678	5
20	456789012	M	1	66	N	Y	56789	4
30	456789012	F	2	66	N	Y	56789	4
20	567890123	M	1	77	N	Y	65432	7
31	567890123	F	2	75	N	Y	65432	7

Dependent Data Suffix	Sponsor SSN	Sex	Relation to Sponsor	Date of Birth	Champus Eligible?	Medicare Eligible?	Zipcode	TriCare Region
01	234567890	M	3	19 85 06 22	Y	N	03456	2
20	234567890	M	1	19 60 03 16	N	N	03456	2
30	234567890	F	2	19 62 06 30	Y	N	03456	2
01	345678901	F	3	19 79 08 03	Y	N	45678	5
02	345678901	M	3	19 82 02 12	Y	N	45678	5
20	345678901	M	1	19 49 04 16	Y	N	45678	5
31	345678901	F	2	19 53 11 23	Y	N	45678	5
20	456789012	M	1	19 33 10 12	N	Y	56789	4
30	456789012	F	2	19 33 12 02	N	Y	56789	4
20	567890123	M	1	19 22 04 22	N	Y	65432	7
31	567890123	F	2	19 24 07 15	N	Y	65432	7

Similarly, after copying in beneficiary demographic data, we next import sponsor demographic data into the health care demographic file, using a similar process. We import demographic data first from the start-of-year sponsor file and then from the end-of-year sponsor file. As with beneficiary data, end-of-year data take precedence over start-of-year data. The health care demographic file now has all necessary identification and demographic data. Figure 3-4 shows this process.

Figure 3-4. Merging 9/30/98 and 9/30/99 Sponsor Data into 1999 Health Care Demographic File



Note in Figure 3-4 that the sponsor with SSN = 567890123 apparently died during FY99 because his/her status changed from "R" (retired) to "D" (deceased) and that the end-of-year status takes precedence in the health care demographic file.

HEALTH CARE WORKLOAD DATA

One of the major improvements in our methodology in recent years has been the ability to link MTF workloads and purchased care cost data directly with DEERS demographic data, using the sponsor SSN plus DDS. After completing the construction of the health care demographic file, we turn our attention to the health care workload file.

General Approach

In this section, we discuss the general approach we use to accumulate MTF workload data and purchase care costs into the health care workload file. This approach applies generally to all categories of health care. We will discuss the variations for specific categories of health care in succeeding sections.

We receive 1 to more than 100 input data files for each category of health care. The approach to accumulating these data into the health care workload file is the

same. In this section, the term *workload* includes not only MTF workloads but also the government share of purchased care costs.

Health Care Recipients Not Found in Beneficiary Files

We rely on DEERS for our population data because DEERS is the central eligibility authority within DoD and because the demographic data in health care files often is missing, incomplete, or in conflict with the data in DEERS. There are, however, records of care in our medical level-of-effort source files that do not link to the DEERS population in our beneficiary files. These records fall into two categories:

- The sponsor SSN is found, but no DDS with that SSN is found in our beneficiary files. This situation could occur for a newborn baby who needed care before he or she was registered with DEERS.
- The sponsor SSN is not found in our beneficiary files. These sponsors could be non-DoD (e.g., Coast Guard) personnel.

We track health care delivered to these people for three reasons:

- *To determine cost per workload unit.* We need total MTF health care workloads delivered to determine an accurate cost per workload unit. We know total costs, so we must divide by total workloads.
- *For internal control and auditing purposes.* We need to be able to identify the recipients of all health care delivered.
- *Because persons whose sponsors are in DEERS probably are eligible for care themselves.*

To handle the health care delivered to these two groups, we build an additional data set for each group. Thus, we have a health care workload file for each group:

- The beneficiary is in the beneficiary file: Workloads for these patients are in the *deerswklds.dbf* file.
- The sponsor SSN is in the beneficiary file, but the individual beneficiary is not: Workloads for these patients are in the *deersponwklds.dbf* file.
- The sponsor SSN is not in the beneficiary file: Workloads for these patients are in the *nondeerswklds.dbf* file.

Accumulating MTF Workloads and Purchased Care Costs

Some of the health care category workloads are contained in a single file (e.g., MTF inpatient admissions); other categories may have more than 100 files (e.g., MTF outpatient pharmacy). The process of accumulating workloads is the same

for every file. We discuss this process for a single file, then we discuss how the process is extended to categories with multiple files.

Each of the data files contains fields that are not used in the MRHL calculation. These fields are present in the file to support audits. We first copy only the fields we need from the health care input database file to a temporary parent file. The fields we copy include fields for patient identification (SSNs, DDS), any demographic data, and health care workload data.

After constructing the parent file, we sum the workloads and insert the sum(s) into a trace file (*tracefyl.dbf*), which we use to trace our data flows and ensure that we have captured all of the health care delivered. We then check the parent file for data that are out-of-range. Examples include care delivered before the start of the year or after the end of the year or negative or zero workload values. Any records in this category are appended to an out-of-range file (*outofrange.dbf*) so that we may account for the workloads. We then delete the out-of-range records from the parent file. We sum the workloads in *outofrange.dbf* and insert the sum(s) into *tracefyl.dbf.*

We next identify the records of patients who are in the *deerswklds.dbf* file. We accumulate the workloads in the patients' records in *deerswklds.dbf* and then delete them from the parent file. We again sum the workloads transferred to *deerswklds.dbf* and insert the sum(s) into *tracefyl.dbf.*

We then append the records of patients whose sponsor SSNs are found in our DEERS beneficiary file to a temporary file (*deerspontemp.dbf*) and delete them from the parent file. *Deerspontemp.dbf* contains copies of individual health care records—one record for each incident of care. There generally is more than one record for any given individual patient. When all health care files in all categories have been processed, we then collapse *deerspontemp.dbf* into *deersponwklds.dbf,* which has one record for each person in *deerspontemp.dbf* with all workloads summed for each person. We sum the workloads transferred to *deerspontemp.dbf* and insert the sum(s) into *tracefyl.dbf.*

At this stage of the process, the only records remaining in the temporary parent file are those whose sponsor SSNs are not in our DEERS beneficiary file. We sum their workloads and insert the sum(s) into *tracefyl.dbf* and append the records to *nondeerstemp.dbf. Nondeerstemp.dbf* corresponds to *deerspontemp.dbf,* except that the former contains copies of the individual health care records for patients whose sponsors who are not in our beneficiary files. Similarly, after all health care files have been processed, we collapse *nondeerstemp.dbf* into *nondeerswklds.dbf,* with one record per individual.

HEALTH CARE CATEGORIES WITH MULTIPLE FILES

Where a category of care has more than one file of health care data, we first construct a data file with the file names of each file in that category. We then use this

file to call each individual health care file in order. After processing each file, we erase the old temporary parent file. We record the workloads of each file individually in *tracefyl.dbf*.

MATCHING RECORDS FROM *DEERSPONWKLDS.DBF* TO *DEERSWKLDS.DBF*

After processing all health care files and collapsing *deerspontemp.dbf* to *deersponwklds.dbf*, we attempt to match records in *deersponwklds.dbf* (sponsor in DEERS beneficiary file) with records in *deerswklds.dbf* (individual in DEERS beneficiary file). We do this matching to allow for cases in which the DDS is missing or incorrect in the health care files.

We first try to find a match between the patient SSN in *deersponwklds.dbf* and the beneficiary SSN field in the health care demographic file, *deersdemog.dbf*. If we cannot match patient and beneficiary SSNs, we then try to find a family member for that sponsor SSN with the same sex and age in *deersdemog.dbf*. If we find a match in either case, we attribute the workload in *deersponwklds.dbf* to that person's record in the health care workload file, *deerswklds.dbf*, and then we delete the *deersponwklds.dbf* record.

CONSTRUCTING DEMOGRAPHIC FILE FROM *DEERSPONWKLDS.DBF* FOR BENEFICIARIES WHO ARE NOT IN DEERS

After deleting the records from *deersponwklds.dbf* for individuals we located in *deerswklds.dbf*, our next step is to construct a demographic file for the remaining individuals in *deersponwklds.dbf*. This file corresponds to *deersdemog.dbf* for the beneficiaries who are in our DEERS beneficiary file. By definition, the people in *deersponwklds.dbf* have sponsor SSNs in our DEERS beneficiary file; therefore, their sponsors also are in our DEERS sponsor file because there is a sponsor in the DEERS sponsor file for every individual in the DEERS beneficiary file. Therefore, we use the sponsor demographic data from the DEERS sponsor file. Because the individual is not in the DEERS beneficiary file (otherwise we would have accumulated his or her workload in *deerswklds.dbf*), we use demographics that are available from the health care files. The health care demographics are not as extensive as those from DEERS. Specifically, they do not have Tricare and Medicare eligibility or Zip code and Tricare region data.

The process of constructing this demographic file, *deerspondemog.dbf*, is straightforward. First, we copy the beneficiary identification and beneficiary demographic fields from *deersponwklds.dbf* to *deerspondemog.dbf*. We then link *deerspondemog.dbf* to the start-of-year sponsor file and copy sponsor demographics from the latter file. Finally, we link to the end-of-year sponsor file and import that file's data. As with our other health care demographic file, this process gives precedence to end-of-year demographic data.

Processing Differences for Different Health Care Categories

In the following subsections, we discuss how processing of files in each category of health care differs from the general procedure we present above.

MTF INPATIENT DATA

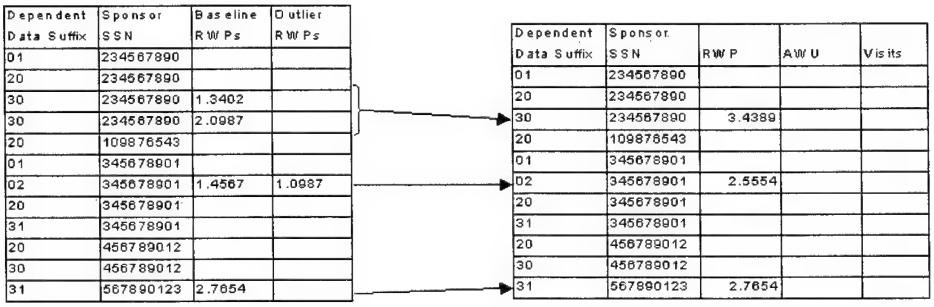
We receive a single consolidated source file of MTF inpatient data from USAMISSA, Ft. Detrick, MD. This file includes patient identification and demographic data, workloads, and additional fields for audits. The file layout appears in Appendix A.

The workload unit for MTF inpatient care is the inpatient RWP. The RWP is related to the average length of stay of all patients for the primary diagnosis for which the patient was admitted to the hospital.

The inpatient input data file has two RWP fields: *Baseline RWP* and *Outlier RWP*. If the patient's actual length of stay is within a certain range, the admission is assigned a standard, or baseline, RWP value, which is placed in the *Baseline RWP* field. In this case, the *Outlier RWP* field is empty. If the actual length of stay is below the range, the *Baseline RWP* field contains a value that is calculated from the actual length of stay; again, the *Outlier RWP* field is empty. If the length of stay is above the range, the admission also is assigned the baseline RWP value in the *Baseline RWP* field, plus an additional RWP value in the *Outlier RWP* field. Thus, the total RWP for each admission is the sum of the values in the *Baseline RWP* and *Outlier RWP* fields. We accumulate this sum in our output files.

Figure 3-5 shows the process of importing inpatient workloads from MTF inpatient input data file to *deerswklds.dbf*.

Figure 3-5. Importing MTF Inpatient Workloads from Input File to Deerswklds.dbf



Dependent Data Suffix	Sponsor SSN	Baseline RWPs	Outlier RWPs
01	234567890		
20	234567890		
30	234567890	1.3402	
30	234567890	2.0987	
20	109876543		
01	345678901		
02	345678901	1.4567	1.0987
20	345678901		
31	345678901		
20	456789012		
30	456789012		
31	567890123	2.7654	

Dependent Data Suffix	Sponsor SSN	RWP	AWU	Visits
01	234567890			
20	234567890			
30	234567890	3.4389		
20	109876543			
01	345678901			
02	345678901	2.5554		
20	345678901			
31	345678901			
20	456789012			
30	456789012			
31	567890123	2.7654		

Note in Figure 3-5 that one individual (sponsor SSN = 234567890, DDS = 30) had two hospital stays and that another (sponsor SSN = 345678901, DDS = 02)

had an extended stay, resulting in baseline and outlier RWPs. In both cases, the corresponding records in *deerswklds.dbf* contains the sum of the RWPs for each individual.

MTF Outpatient Health Care Data

The Defense Health Program (DHP) uses two redundant workload measures for outpatient health care: AWU and APG. We allocate outpatient health care costs separately, using both units.

Ambulatory Work Units

The AWU is a nondimensional unit. A different AWU value is associated with a visit to each outpatient clinic. Clinics are identified by a three-character MEPRS code. The first character for outpatient clinics is always *B*. Therefore, a different AWU value is assigned to each three-character MEPRS code beginning with *B*. AWU values are updated periodically by the TMA. We obtain a file of current AWU values by three-character MEPRS code from the TMA.

DoD does not have a central source for AWU data. Instead, we use input files derived from files of the Composite Health Care System (CHCS). CHCS is a management information system for MTFs. A component of CHCS tracks outpatient visits. In 1999, 105 MTFs were designated as "host sites"; these MTFs accumulate data from smaller facilities. All MTF outpatient visits are accumulated at a host site.

We obtain a file for each host site from the Tri-service Medical Systems Support Center (TMSSC). These files have a record for each outpatient visit during the analysis year.[5] In addition to patient identification and demographic fields, the files contain a field with the MEPRS code for the clinic visited and additional fields for auditing. A layout of the CHCS files appears in Appendix A.

To accumulate AWUs for each individual in the *deerswklds.dbf* file and add appropriate records to the *deersponwklds.dbf* and *nondeerswklds.dbf* files, we call up each host site CHCS file in turn. We then copy the sponsor SSN, DDS, patient demographic data, and the first three characters of the MEPRS code field (CHCS files contain MEPRS codes to four characters) from the CHCS file to a temporary file that also contains a field for AWU weight. We then link the temporary file to the file of AWU weights by MEPRS codes and copy the corresponding AWU weights into the temporary file.[6]

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[5] These visits are "countable" outpatient kept appointments, walk-in visits, and telephone consultations. Interaction with a health care provider must take place for a visit to be countable.

[6] The CHCS host site files contain records for every outpatient visit, including dental, lab, and radiology appointments. These latter interactions, as well as visits to other activities in the MTF, have no AWU weight assigned and therefore are not in the MEPRS/AWU weight file. Only outpatient visits with a *B* for the first character have an AWU weight assigned. Where a MEPRS code is not found in MEPRS/AWU file, no AWU weight is given to that visit.

After copying the AWU weights that correspond to the clinic MEPRS code into the temporary file, we process the temporary file in the same manner as discussed in the "General Approach" section.

Ambulatory Procedure Groups

AWUs are based on the relative average cost of a visit to a clinic, by clinic type (as identified by the three-character MEPRS code). All visits to a particular clinic will receive the same cost share, regardless of the amount of care actually delivered. The AWU approach does not allow for single visits that cover multiple ailments.

APGs avoid these problems. They are calculated according to the procedures performed and can accommodate multiple procedures for a single outpatient visit. After an outpatient's encounter with a health care provider in an MTF, the provider fills out a paper "bubble sheet" and lists codes for the procedures performed, which are called common procedural terminology (CPT) codes. The bubble sheet is scanned and the data are electronically recorded on a Standard Ambulatory Data Record (SADR). The TMA collects SADRs centrally and applies a software routine that groups CPT codes and assigns a medical APG, an evaluation and management (EM) APG, and up to four procedural APG codes to the encounter. Each APG code has a weight assigned to it, based on its relative cost. Presumably, the APG system is more precise because there are 290 discrete APG codes and only 79 discrete AWU clinic weights.

The weights of the APG codes are summed for the encounter to allow for economies of scale, on the theory that performing multiple procedures on one visit is less expensive than performing the same procedures on individual visits. This sum is the APG RVU. The APG RVU is computed according to the following logic developed by the TMA:

1. Either the medical APG or the EM APG always has a zero weight.
2. If the nonzero medical or EM APG does *not* have the greatest weight, discard it.
3. Rank remaining APGs in descending order of weight.
4. The APG RVU is the sum of the greatest APG weight plus 50 percent of the remaining APG weights:

$$APG\,RVU = (greatest\,APG\,weight) + 0.5\sum(all\,remaining\,APG\,weights)$$

We receive 13 files of outpatient visits with APG codes assigned from USAMISSA, Ft. Detrick, MD. We also receive a separate file of weights for each APG code from the TMA. We use the weights from the latter file to compute the APG RVU.

Our procedure for processing APG outpatient files is similar to that for CHCS AWU files. We call up each APG file in turn and copy the patient identification and demographic fields and APG codes to a temporary file, which also has a field for APG weights and the APG RVU value. We then link the temporary file to the APG weight file and import the weights for the APG codes. Then we use the routine described above logic to calculate an APG RVU value. We then process the temporary file, using the procedure described in the "General Approach" section. Once we have completed each file, we call the next one in order.

MTF Outpatient Pharmacy Costs

Rising costs of prescription medications as a portion of total health care costs are a concern throughout the health care industry. As a result, we have started to accumulate outpatient pharmacy costs separately from other health care costs. We do not treat inpatient pharmacy costs separately because the RWP weights are calculated with a methodology that includes the cost of pharmaceuticals in the total cost of the impatient encounter.

The "workload" measure for outpatient prescriptions is *fill cost*. The TMA calculates the fill cost of each prescription it fills on the basis of the cost to DoD of purchasing the medication and the quantity dispensed. Thus, the fill cost does not include any indirect or overhead costs associated with operating MTF pharmacies. Fill cost therefore is analogous to health care workloads. We use it to allocate total pharmacy costs, which include the direct costs of pharmaceuticals as well as indirect and overhead costs.

Our MTF outpatient pharmacy input data files are extracted from CHCS, just like the clinic visit files we use to calculate and assign AWU values. TMSSC provides us with 105 files—one for each CHCS host site—which between them have a record for every outpatient prescription filled by an MTF. These files have the usual patient identification and demographic fields, a fill cost field, and additional fields for auditing.

We process pharmacy files the same way we process CHCS outpatient visit files, except that there is no need to calculate a weight.

Tricare Costs

The TMA provides DMDC with an extract of the HCSR file. The HCSR file documents all care delivered under Tricare. DMDC processes that extract file and provides us with five data files. Four of the files cover outpatient health care and prescriptions; the fifth covers inpatient care. Each file contains patient identification and demographic data, the government share of health care costs, the government share of outpatient prescription costs, and the HCSR enrollment status code. A file layout appears in Appendix A. We use the enrollment status code to determine the Tricare program (Prime, Extra, Standard) under which the episode of care falls.

We handle the HCSR files the same way we handle MTF outpatient care files. We call up each file in turn and copy the identification and demographic fields, the two cost share fields, and the enrollment status code to a temporary file. The temporary file also has a Tricare program field. We link the temporary file to a file which maps enrollment status codes to Tricare programs, and fill the temporary file Tricare program field.

We then process the temporary file, using the procedures described in the "General Approach" section. Costs from the temporary file are accumulated in nine fields in *deerswklds.dbf*. These fields are broken down into the three Tricare programs and inpatient care, outpatient care, and outpatient pharmacy costs.

National Mail Order Pharmacy

We receive a single file from the Assistant Secretary of Defense (Health Affairs) (ASD[HA]) that contains all prescriptions filled by the NMOP program. This file has the usual beneficiary identification and demographic information, an *rxprice* field, and audit fields. The *rxprice* is the government's cost of the prescription. We use the procedures described in the "General Approach" section to process this file, accumulating the values in the *rxprice* field.

Uniformed Services Family Health Program

We also receive a single file from ASD(HA) that contains all of the enrollees in the USFHP program. This file contains a *totalamt* field, which is the total capitated cost to the government of the enrollee. We use the procedures described in the "General Approach" section to process this file, accumulating the values in the *totalamt* field.

Medical Treatment Facility Cost Data

At this point, we have two sets of data files. The first set contains beneficiary and sponsor demographic data for beneficiaries who were eligible for DoD health care. The second set contains MTF workloads and the government share of purchased care costs for the cost each person received. Each set has a file containing beneficiaries who were in our DEERS beneficiary database, a file containing beneficiaries whose sponsor SSNs are in our DEERS beneficiary database but are not themselves in that database, and a file containing beneficiaries whose sponsor SSNs are not in our DEERS beneficiary database. The demographic files are

deersdemog.dbf, deerspondemog.dbf, and *nondeersdemog.dbf*. These files contain the following fields:

- Beneficiary identification
  - Sponsor SSN
  - DDS
  - Beneficiary SSN
- Beneficiary demographic information
  - Age in years to birthday nearest 30 September
  - Sex
  - Relationship to sponsor (self, spouse, child, other)
- Sponsor demographic information
  - Age in years to birthday nearest 30 September
  - Status (not retired, retired, deceased)
  - Pay grade (officer, enlisted)
  - Component (Active, Reserve)
  - Disability (none, temporary, permanent).

The health care workload files are *deerswklds.dbf, deersponwklds.dbf*, and *non-deerswklds.dbf*. These files contain the following information:

- Beneficiary identification
  - Sponsor SSN
  - DDS
- Beneficiary's health care utilization during analysis year
  - Direct care system
    (1) Total MTF inpatient RWPs
    (2) Total MTF outpatient AWUs
    (3) Total MTF outpatient visits with AWU weights > 0

(4) Total MTF outpatient APG RVUs

(5) Total MTF outpatient visits with APG RVU weight > 0

(6) Total MTF outpatient pharmacy fill cost

➤ Purchased care system

(1) Tricare Prime

(a) Total inpatient care government cost share

(b) Total outpatient care government cost share

(c) Total outpatient pharmacy government cost share

(2) Tricare Extra

(a) Total inpatient care government cost share

(b) Total outpatient care government cost share

(c) Total outpatient pharmacy government cost share

(3) Tricare Standard

(a) Total inpatient care government cost share

(b) Total outpatient care government cost share

(c) Total outpatient pharmacy government cost share

(4) Total NMOP *rxprice*

(5) Total USFHP *totalamt*

The only information missing at this point is the allocation of total MTF inpatient care, outpatient care, and outpatient pharmacy costs, based on total RWPs, AWUs, APG RVUs, and fill cost as appropriate.

Total MTF Costs

We use the costs contained in MEPRS as the basis for our MTF costs. ASD(HA) provides us with MEPRS costs, which have been adjusted to capture the full cost of providing health care by the DHP while subtracting the costs of non-health care activities of MTFs that are reported by MEPRS.

MEPRS "steps down" or allocates the expenses in the ancillary services (D) and support services (E) accounts to the other five accounts. This process progres-

sively allocates accounts in stages to the other accounts that receive support from the allocated account. A support service cost account, such as housekeeping, is allocated to other cost accounts that receive support from that account. In this example, virtually every other cost account receives support from housekeeping, so housekeeping costs are allocated widely.

Before turning over the costs to LMI, ASD(HA) further allocates health care-related special programs (F) accounts to inpatient (A), outpatient (B), and dental (C) accounts as appropriate. Examples include medical care in nonuniformed (i.e., civilian) facilities, immunizations, and urgent minor construction.

Pharmacy costs are a D account. These costs normally would be allocated to the health care accounts. Because we treat outpatient pharmacy costs separately, ASD(HA) isolates the outpatient portion of the D account after it has received the stepdown costs from the E accounts.

MEPRS is an MTF-based system and does not capture all costs. Examples of costs that MEPRS does not capture include nonpay military personnel costs, civilian fringe benefits, major plant and real estate depreciation, and the costs of centralized services such as management headquarters and data processing. ASD(HA) allocates these costs to MEPRS accounts to determine the full cost of health care provided by the direct care system.

We then take the full inpatient, outpatient health care, and outpatient pharmacy costs and calculate workload average unit costs.

Calculating MTF Average Workload Unit Costs

The AWU would cost is simply total inpatient, outpatient, and pharmacy costs divided by the appropriate total workload units. Note that the costs and workload totals include the care delivered to non-DoD patients, so that we determine an actual average cost of all health care delivered to all patients.[7]

$$Average\ RWP\ cost\ (\$) = \frac{MTF\ Inpatient\ Health\ Care\ Costs}{Total\ RWPs}$$

$$Average\ AWU\ cost\ (\$) = \frac{MTF\ Outpatient\ Health\ Care\ Costs}{Total\ AWUs}$$

[7] Our database contains records for beneficiaries of DoD sponsors, but MTF care also is delivered to beneficiaries whose sponsors are not active duty or retired DoD military members. These groups include the Coast Guard; the National Oceanographic and Atmospheric Administration (NOAA); the Uniformed Public Health Service; military personnel of foreign countries serving in the United States; and certain categories of U.S. government civilian employees, such as the foreign service, when serving overseas. Care also is delivered to military Reservists during periods of active duty for training (a readiness cost of a Reserve force).

$$\textit{Average APG RVU cost (\$)} = \frac{\textit{MTF Outpatient Health Care Costs}}{\textit{Total APG RVUs}}$$

$$\textit{Fillcost multiplier (\$)} = \frac{\textit{MTF Outpatient Pharmacy Costs}}{\textit{Total fillcost}}$$

Applying Average Workload Unit Costs

The health care cost databases are *deerscosts.dbf, deersponcosts.dbf*, and *non-deerscosts.dbf*—for beneficiaries in our DEERS beneficiary database, beneficiaries with sponsors in our DEERS beneficiary database who are not themselves in that database, and beneficiaries whose sponsors are not in our DEERS beneficiary database, respectively. These cost files have the same structure as the health care workload databases (*deerswklds.dbf, deersponwklds.dbf*, and *nondeerswklds.dbf*), except that cost fields replace workload fields. The corresponding cost and workload databases contain the same people and the same identification and demographic fields.

To allocate direct care system costs, we link a cost database to the corresponding workload database, using sponsor SSNs and DDS. We then fill the cost fields with the product of the average cost per workload unit multiplied by the number of workload units of that type for that individual in the workload file.

After we have filled all of the direct care cost fields, we fill the purchased care cost fields with the contents of the same fields in the workload file because these fields already contain costs.

After we fill all of the costs in the health care cost databases we prepare a set of files for the Office of the Actuary's health care contract actuary. These files contain the demographic fields from *deersdemog.dbf* and *deerspondemog.dbf* and the cost fields of *deerscosts.dbf* and *deersponcosts.dbf* for retired and deceased sponsors. This procedure protects the privacy of individual beneficiaries; identification information is not needed for actuarial calculations. We turn over a set of complete files (including individual identification fields) to the Office of the Actuary.

Chapter 4
Summary

The process for generating the population demographic and health care files is complex but straightforward. We rely on DEERS for our eligibility and demographic data. Eligibility and beneficiary demographic data are contained in a beneficiary database; sponsor demographics are in a sponsor database. DMDC furnishes us with both of these databases. We receive health care workload and cost data from several activities within the TMA, along with the operations branch of the ASD(HA). The direct care system workload and purchased care claims data include every incident of health care delivery (inpatient admissions, outpatient visits, and outpatient prescriptions) in the DHP.

Using our population databases from DMDC, we attribute workloads from the direct care system and the government share of costs for the purchased care system to each individual beneficiary. We rely primarily on the sponsor's SSN and the DDS to link health care records to beneficiaries. Where we can match only sponsor SSNs, we try to match the beneficiaries' SSNs and the sponsor SSN plus beneficiary sex and beneficiary date of birth to link health care records to beneficiaries. Because we cannot always locate the beneficiary in our population database, we have additional data files for beneficiaries who have DEERS sponsors but are not themselves in the population database; for completeness, we also have files for beneficiaries whose sponsors are not in our population database.

Once we have attributed MTF workloads to individuals, we sum the total workload delivered in each health care category and divide that total into the total cost of that category, as derived from MEPRS. We then multiply this average cost per workload unit by the number of workload units for each individual in the health care workload databases to fill the direct care cost fields in our health care cost databases. The purchased care cost fields are throughput from the corresponding government cost share fields in the health care workload files.

Once we have filled all of the cost fields, we construct files for use in estimating the MRHL. These files are copies of the health care demographic and health care cost files for beneficiaries in DEERS and beneficiaries with DEERS sponsors with records for retirees, dependents of retirees, and survivors. We turn over these files, along with a population demographic file (with identification data removed) to the DoD Office of the Actuary's health care actuary contractor.

Appendix A
Input Data File Layouts

Tables A-1 through A-9 provide detailed layouts of input data files.

Table A-1. Sponsor File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Sponsor SSN	SPONSORSSN	Character	9	
Sponsor birth century	CC	Character	2	
Sponsor birth year	YY	Character	2	
Sponsor birth month	MM	Character	2	01–12
Sponsor birth day	DD	Character	2	01–31
Sponsor's DEERS status code	STATUS	Character	1	Same values as DEERS: A–Z (less G, I, K, O, Y), $, @, #, ##
Sponsor's DEERS service code	SERVICE	Character	1	Same values as DEERS: A, E, F, I, M, N, P, X, Z, 1, 2, 3, 4
Sponsor pay grade	PAYGRADE	Character	1	E—Enlisted O—Officer U—Unknown
Sponsor component	COMP	Character	1	R—Reserve Retired A—Active Retired U—Not Retired O—Other
Sponsor disability status	DISABLED	Character	1	N—Not Disabled T—Temporary P—Permanent
Sponsor duty station postal ZIP code	ZIP	Character	5	
Sponsor DEERS eligibility code	SPELIGCODE	Character	1	Same values as DEERS: 0–9, L, N, P, R, V

Table A-2. Beneficiary File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Beneficiary DEERS DDS	DEPDATASFX	Character	2	01–99
Sponsor SSN	SPONSORSSN	Character	9	
Beneficiary SSN	BENEFICSSN	Character	9	
Beneficiary sex	SEX	Character	1	M—Male F—Female U—Unknown
Beneficiary relationship to sponsor	RELATION	Character	1	1—Self 2—Spouse 3—Child 4—Parent 5—Other
Beneficiary birth century	CC	Character	2	
Beneficiary birth year	YY	Character	2	00–99
Beneficiary birth month	MM	Character	2	01–12
Beneficiary birth day	DD	Character	2	01–31
Beneficiary eligible for purchased care?	CHAMPUSELG	Character	1	Y, N
Beneficiary eligible for Medicare?	MEDICARELG	Character	1	Y, N
Beneficiary residence postal Zip code	ZIPCODE	Character	5	
Beneficiary residence Tricare region	REGION	Character	2	01–13
Beneficiary DEERS eligibility code	BFELIGCODE	Character	1	Same values as DEERS: 0–9, L, N, P, R, V
Beneficiary DEERS eligibility start century	ELIGCC	Character	2	
Beneficiary DEERS eligibility start year	ELIGYY	Character	2	00–99
Beneficiary DEERS eligibility start month	ELIGMM	Character	2	01–12
Beneficiary DEERS eligibility start day	ELIGDD	Character	2	01–31

Table A-3. Ambulatory Procedure Group File Layout

Field contents	*FoxPro* field name	Type	Width
Appointment identification number	APPTID	Character	11
EM code	EMCODE	Character	5
CPT code #1	CPT1	Character	5
CPT code #2	CPT2	Character	5
CPT code #3	CPT3	Character	5
CPT code #4	CPT4	Character	5
Patient date of birth (YYYYMMDD)	DOB	Character	8
DMIS ID of MTF where appointment occurred	DMIS	Character	4
Patient family member prefix	FMP	Character	2
Patient sex	SEX	Character	1
Appointment date (YYYYMMDD)	APPTDATE	Character	8
Clinic MEPRS code where treatment occurred	MEPRS	Character	4
First 6 characters of provider name	PROVIDER	Character	6
Patient SSN	BENEFICSSN	Character	9
Sponsor SSN	SPONSORSSN	Character	9
DMIS ID of patient's enrollment MTF	ENROLLDMIS	Character	4
Medical APG code	MEDAPG	Character	3
E&M APG code	EMAPG	Character	3
Procedure APG code #1	PRAPG1	Character	3
Procedure APG code #2	PRAPG2	Character	3
Procedure APG code #3	PRAPG3	Character	3
Procedure APG code #4	PRAPG4	Character	3

Table A-4. CHCS Outpatient Visit File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Sponsor SSN	SPONSORSSN	Character	9	Current entry in patient file (scrambled)
Patient SSN	BENEFICSSN	Character	9	Current entry in patient file (scrambled)
DDS	DEPDATASFX	Character	2	Current entry in patient file; populated by most recent DEERS check
Sex	SEX	Character	1	Current entry in patient file
Patient birth century	CC	Character	2	Current entry in patient file
Patient birth year	YY	Character	2	00–99; current entry in patient file
Patient birth month	MM	Character	2	01–12; current entry in patient file
Patient birth day	DD	Character	2	01–31; current entry in patient file
Patient category	BENCAT	Character	3	Uses data in patient appt file (PAT CAT on date seen) unless blank; if blank, PAT CAT from patient file is used (current PAT CAT)
Patient Zip code	ZIPCODE	Character	5	
MEPRS Code	MEPRS	Character	4	MEPRS code chosen during end-of-day (EOD) processing (default is clinic's MEPRS code)
Inpatient/ outpatient flag	INOUTPATNT	Character	1	Patient status at time of appointment; 1=Inpt, 2=Outpt
DMIS ID code	DMIS	Character	4	Based on MTF the clinic is currently assigned to.
Date of visit/encounter	VISITDATE	Character	8	YYYYMMDD
Time of visit/encounter	VISIT_TIME	Character	4	24-hour clock; time scheduled to be seen, not check-in
Clinic name	CLINIC	Character	30	Plain text
Appointment status	APPT_TYPE	Character	7	Entered at time of check-in or EOD processing
Provider name	PROVIDER	Character	30	Plain text
Enrollment DMIS ID	ENROLLDMIS	Character	4	Based on MCP patient file; DMIS ID of division patient is enrolled to (should be associated with place of care for PCM)
Family member prefix	FMP	Character	2	

Table A-5. USFHP File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Facility number	FACID	Character	4	DMIS ID number
Fiscal year	FY	Character	4	
Sponsor SSN	SPONSORSSN	Character	9	
Sponsor Service branch	SERVICE	Character	1	
DEERS DDS	DEPDATASFX	Character	2	
Enrollee gender	SEX	Character	1	M, F
Enrollee birth century	CC	Character	2	
Enrollee birth year	YY	Character	2	00–99
Enrollee birth month	MM	Character	2	01–12
Enrollee birth day	DD	Character	2	01–31
Beneficiary category	BENCAT	Character	3	DA—Dependent of active duty sponsor RET—Retired sponsor DR—Dependent or survivor of retired sponsor DGR—Dependent of retired National Guard/Reserve sponsor OTH—Other
Enrollment start date	ENROLLDATE	Character	8	Date of enrollment in USFHP, YYYYMMDD
FY99 capitation payments	CAPAMT	Numeric	7	No decimal point ($$$$$CC)
FY99 family planning Payments	FAMPLNGAMT	Numeric	7	No decimal point ($$$$$CC)
Total FY99 payments	TOTALAMT	Numeric	7	No decimal point ($$$$$CC)

Table A-6. MTF Inpatient File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Family member prefix	DEPDATASFX	Character	2	01–99
Sponsor SSN	SPONSORSSN	Character	9	
Patient sex	SEX	Character	1	M, F
Patient birth century	CC	Character	2	
Patient birth year	YY	Character	2	00–99
Patient birth month	MM	Character	2	01–12
Patient birth day	DD	Character	2	01–31
Beneficiary category	BENCAT	Character	3	Patient category
Sponsor pay grade	PAY	Character	2	
DRG	DRG	Character	3	Primary DRG
Bed days	BEDDAYS	Numeric	4	Total bed days
Bassinet days	BASKDAYS	Numeric	4	Total bassinet days
Admission century	ADMCC	Character	2	
Admission year	ADMYY	Character	2	00–99
Admission month	ADMMM	Character	2	01–12
Admission day	ADMDD	Character	2	01–31
Discharge century	DISCC	Character	2	
Discharge year	DISYY	Character	2	00–99
Discharge month	DISMM	Character	2	01–12
Discharge day	DISDD	Character	2	01–31
Baseline RWPs	RWPBASE	Numeric	9	
Outlier RWPs	RWPOUT	Numeric	9	
DMIS ID of treating MTF	DMIS	Character	4	

Table A-7. National Mail Order Pharmacy File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Sponsor SSN	SPONSORSSN	Character	9	
DDS	DEPDATASFX	Character	2	
Beneficiary gender	SEX	Character	1	1=Male, 2=Female
Beneficiary birth month	MM	Character	2	01–12
Beneficiary birth day	DD	Character	2	01–31
Beneficiary birth century	CC	Character	2	
Beneficiary birth year	YY	Character	2	00–99
Rx number	RXNUMBER	Numeric	7	Number that uniquely identifies a pharmacy Rx
Rx total price	RXPRICE	Numeric	15	Total cost to DoD for prescription ($$.CC)
Claim price	CLAIMPRICE	Numeric	14	
NDC	NDC	Character	11	Code that denotes particular product as to manufacturer, drug, and package size
DEA number	DEANUMBER	Character	9	Drug Enforcement Administration (DEA) code reported for person who is prescribing NMOP medication
Prescription fill month	TRANSACTMM	Character	2	01–12
Prescription fill day	TRANSACTDD	Character	2	01–31
Prescription fill century	TRANSACTCC	Character	2	
Prescription fill year	TRANSACTYY	Character	2	00–99

Table A-8. MTF Outpatient Pharmacy File Layout

Field contents	*FoxPro* field name	Type	Width	Remarks
Order date	ORDDATE	Character	8	YYYYMMDD
Order time	ORDTIME	Character	4	24-hour clock
Fill date	FILLDATE	Character	8	YYYYMMDD
Fill time	FILLTIME	Character	4	24-hour clock
Action code	ACTIONCD	Character	1	
Quantity	QUANTITY	Character	7	
Fill cost	FILLCOST	Character	7	$$$$$$$.CC
Pharmacy DMIS ID	DMIS	Character	4	
Provider name	PROVIDER	Character	30	
Provider SSN	PROVSSN	Character	9	
Provider DEA number	PROVDEA	Character	9	
Drug primary NDC code	DRUG_NDC	Character	13	
Sponsor SSN	SPONSORSSN	Character	9	
Beneficiary SSN	BENEFICSSN	Character	9	
Family member prefix	FMP	Character	2	
DDS	DEPDATASFX	Character	2	
Beneficiary sex	SEX	Character	1	M, F
Beneficiary birth century	CC	Character	2	
Beneficiary birth year	YY	Character	2	00–99
Beneficiary birth month	MM	Character	2	01–12
Beneficiary birth day	DD	Character	2	01–31
Patient beneficiary category	BENCAT	Character	3	

Table A-9. Tricare File Layout

Field name	*FoxPro* field name	Type	Width	Remarks
Sponsor SSN	SPONSORSSN	Character	9	
Beneficiary relationship to sponsor	RELATION	Character	1	1—Self 2—Spouse 3—Child
Beneficiary SSN	BENEFICSSN	Character	9	
Beneficiary birth century	CC	Character	2	
Beneficiary birth year	YY	Character	2	00–99
Beneficiary birth month	MM	Character	2	01–12
Beneficiary birth day	DD	Character	2	01–31
DDS	DEPDATASFX	Character	2	
Beneficiary sex	SEX	Character	1	M—Male F—Female U—Unknown
Enrollment status code	ENRLSTATCD	Character	2	
Government-paid portion of health care cost	GOVTPDHLTH	Numeric	9	a) Institutional HCSR: government-paid field b) Noninstitutional HCSR: sum of health care claims fields multiplied by ratio of government paid/HCSR amount; $$$$$$$CC (no decimal point)
Government-paid portion of outpatient pharmacy cost	GOVTPDPHAR	Numeric	9	a) Institutional HCSR: blank b) Noninstitutional HCSR: sum of drug claims fields multiplied by ratio of: government-paid/HCSR amount); $$$$$$$CC (no decimal point)
Care century	CARECC	Character	2	
Care year	CAREYY	Character	2	00–99
Care month	CAREMM	Character	2	01–12
Care day	CAREDD	Character	2	01–31

Appendix B
Data Use Agreement

DUA #_____

DATA USE AGREEMENT

(AGREEMENT FOR USE OF DEPARTMENT OF DEFENSE (DOD) DATA CONTAINING INDIVIDUAL-SPECIFIC INFORMATION)

In order to secure data that resides in a DOD Privacy Act System of Records, and in order to ensure the integrity, security, and confidentiality of information maintained by the DOD, and to permit appropriate disclosure and use of such data as permitted by law, DOD and the Logistics Management Institute, Inc. (LMI) enter into this agreement to comply with the following specific paragraphs.

1. This Agreement is by and between the Department of Defense (DOD) and LMI, hereinafter termed "User."

2. This Agreement addresses the conditions under which DOD will disclose and the User will obtain and use the DOD data file(s) specified in section 7. This Agreement supersedes any and all agreements between the parties with respect to the use of data from the files specified in section 7 and preempts and overrides any instructions, directions, agreements, or other understanding in or pertaining to any grant award or other prior communication from the Department of Defense or any of its components with respect to the data specified herein. Further, the terms of this Agreement can be changed only by a written modification to this Agreement or by the parties adopting a new agreement. The parties agree further that instructions or interpretations issued to the User concerning this Agreement or the data specified herein, shall not be valid unless issued in writing by the DOD point-of-contact specified in section 5 or the DOD signatory to this Agreement shown in section 22.

3. The parties mutually agree that DOD retains all ownership rights to the data file(s) referred to in this Agreement, and that the User does not obtain any right, title, or interest in any of the data furnished by DOD.

4. The parties mutually agree that the following named individual(s) is (are) designated as "Custodian(s)" of the file(s) on behalf of the User and will be personally responsible for the observance of all conditions of use and for establishment and maintenance of security arrangements as specified

in this Agreement to prevent unauthorized use. The User agrees to notify DOD within fifteen (15) days of any change of custodianship. The parties mutually agree that DOD may disapprove the appointment of a custodian or may require the appointment of a new custodian(s) at any time.

Melvin R. Etheridge, Jr.
(Name of Custodian)

Logistics Management Institute
(Company/Organization)

2000 Corporate Ridge
(Street Address)

McLean, VA 22102-7805
(City/State/ZIP Code)

Tel: 703-917-7307 e-mail metheridge@lmi.org
(Phone No. - Including Area Code and e-mail Address, If Applicable)

5. The parties mutually agree that the following named individual will be designated as "point-of-contact" for the Agreement on behalf of DOD.

Chris Doyle
(Name of Contact)

Chief Actuary
(Title/Component)

OUSD(P&R) (Office of the Actuary)

1555 Wilson Blvd., Suite 701
(Street Address)

Arlington, VA. 22209
(City/State/ZIP Code)

Tel: 703-696-7407 Email:DOYLECN@osd.pentagon.mil
(Phone No. - Including Area Code and e-mail Address, If Applicable)

6. The User represents and warrants, and in furnishing the data file(s) specified in section 7 DOD relies upon such representation and warranty, that such data file(s) will be used solely for the following purpose(s).

Identify the beneficiary demographics and health care costs on an individual basis for beneficiaries using the Military Healthcare System in order to estimate the DoD Military Retirement Healthcare Liability (MHRL)as required for the DoD Financial Statements. Continuing analyses of demographic and health care demand data.

Location Where Data will be Stored: LMI offices, 2000 Corporate Ridge, McLean, VA 22102-7805

Justification for Need to Know:

In order to estimate the MHRL, an accurate cost per person by age in each of ten demographic categories must be determined. The healthcare files requested are required to make this determination.

Description How the Data will be used:

Healthcare workloads are accumulated for each individual and summed system-wide. Costs per workload unit are calculated and applied to each individual beneficiary's workload totals.

Format of Information to be Provided:
(Please circle) Paper Diskette Tape Other: Compact Disc

Recipient of Product to be provided: Melvin R. Etheridge, Jr.

Time Period for Which Data is needed: 1 October 1998-30 September 1999.

The User represents and warrants further that the facts and statements made in any study or research protocol or project plan submitted to DOD for each purpose are complete and accurate. Further, the User represents and warrants that said study protocol(s) or project plans, as have been approved by DOD or other appropriate entity as DOD may determine, represent the total use(s) to which the data file(s) specified in section 7 will be put.

The User represents and warrants further that, except as specified in an Attachment to this Agreement or except as DOD shall authorize in writing, the User shall not disclose, release, reveal, show, sell, rent, lease, loan, or otherwise grant access to the data covered by this Agreement to any person. The User agrees that, within the User organization, access to the data covered by this Agreement shall be limited to the minimum number of individuals necessary to achieve the purpose stated in this section and to those individuals on a need-to-know basis only.

7. The following DOD data file(s) is/are covered under this Agreement.

File	Year(s)
Inpatient Biometrics	FY99
Composite Health Care System	FY99
Ambulatory Data System	FY99
USFHP Enrollment and Cost data	FY99
NMOP Enrollment and Cost data	FY99

8. The parties mutually agree that the previously mentioned file(s) (and/or any derivative file(s) [includes any file that maintains or continues identification of individuals]) may be retained by the User until 31 December 2003, hereinafter known as the "retention date". The User agrees to notify DOD within 30 days of the completion of the purpose specified in section 6 if the purpose is completed before the aforementioned retention date. Upon such notice or retention date, whichever occurs sooner, DOD will notify the User either to return all data files to DOD at the User's expense or to destroy such data. If DOD elects to have the User destroy the data, the User agrees to certify the destruction of the files in writing within 30 days of receiving DOD's instruction. A statement certifying this action must be sent to DOD. If DOD elects to have the data returned, the User agrees to return all files to DOD within 30 days of receiving notice to that effect. The User agrees that no data from DOD records, or any parts thereof, shall be retained when the aforementioned file(s) are returned or destroyed unless authorization in writing for the retention of such file(s) has been received from the appropriate Systems Manager or the person designated in item No. 22 of this Agreement. The User acknowledges that stringent adherence to the aforementioned retention date is required, and that the User shall ask DOD for instructions under this paragraph if instructions have not been received after 30 days after the retention date.

   If data is to be maintained as a permanent record, provide the Federal Register paragraph section identifying the organization's "System of Record": _____. Please attach a copy of the Federal Register documentation reflecting the System of Record.

   Some data are provided under the provisions of the Privacy Act of 1974. The data contains patient and provider identity information and thus requires safeguards from unauthorized access and use. I have read and agree to comply with the standards set forth in the Privacy Act of 1974 to include the following:

   a) the data being received contains sensitive patient level data,

   b) the data will not be used for any purpose other than described in this request,

c) government contractors accessing the data must have the appropriate ADP Level security, as defined in the *MHS AIS Security Policy Manual*. This is a responsibility of the sponsoring government requestor.

d) the data will not be made available to unauthorized personnel or organizations,

e) all persons having access to a CEIS application must take the "Computer Awareness Security Training" and sign the "Certificate of Understanding" when in the instance of training provided and access,

f) upon completion of the work, all media will be returned to the DoD government representative or media will be sanitized and verification of this process will be sent to the and DoD government representative,

g) all sensitive data will be marked "For Official Use Only".

The information provided to me will be protected and maintained within the Sponsoring Government Agency identified in this request.

_____

Requestor's Signature/Date

9. The User agrees to establish appropriate administrative, technical, and physical safeguards to protect the confidentiality of the data and to prevent unauthorized use or access to it. The safeguards shall provide a level and scope of security that is not less than the level and scope of security established by the Office of Management and Budget (OMB) in OMB Circular No. A-130, Appendix III—Security of Federal Automated Information Systems, which sets forth guidelines for security plans for automated information systems in Federal agencies. The User acknowledges that the use of unsecured telecommunications, including the Internet, to transmit individually identifiable or deducible information derived from the file(s) specified in section 7 is prohibited. Further, the User agrees that the data must not be physically moved or transmitted in any way from the site indicated in item number 4 without written approval from DOD.

10. The User agrees that the authorized representatives of DOD Office of the Inspector General will be granted access to premises where the aforesaid file(s) are kept for the purpose of inspecting security arrangements confirming whether the User is in compliance with the security requirements specified in paragraph 9.

11. The User agrees that no findings, listing, or information derived from the file(s) specified in section 7, with or without identifiers, may be released if such findings, listing, or information contain any combination of data elements that might allow the deduction of a beneficiary's identification without first obtaining written authorization from the appropriate System

Manager or the person designated in item number 22 of this Agreement. Examples of such data elements include but are not limited to geographic indicator, age, sex, diagnosis, procedure, admission/discharge date(s), or date of death. The User agrees further that DOD shall be the sole judge as to whether any finding, listing, information, or any combination of data extracted or derived from DOD's files identifies or would, with reasonable effort, permit one to identify an individual or to deduce the identity of an individual to a reasonable degree of certainty.

12. The User agrees that, absent express written authorization from the appropriate System Manager or the person designated in item number 22 of this Agreement to do so, the User shall make no attempt to link records included in the file(s) specified in section 7 to any other identifiable source of information. This includes attempts to link to other DOD data file(s). The inclusion of linkage of specific files in a study protocol approved in accordance with section 6 is considered express written authorization from DOD.

13. The User agrees to submit to DOD a copy of all findings within 30 days of making such findings. The parties mutually agree that the User has "made findings" with respect to the data covered by this Agreement when the User prepares any report or other writing for submission to any third party (including but not limited to any manuscript to be submitted for publication) concerning any purpose specified in section 6 (regardless of whether the report or other writing expressly refers to such purpose, to DOD, or to the files specified in section 7 or any data derived from such files). The User agrees not to submit such findings to any third party until receiving DOD's approval to do so. The User agrees further to submit its findings to the Office of the Assistant Secretary of Defense (Health Affairs), TRICARE Management Activity, Health Program Analysis and Evaluation, Skyline Five, 5111 Leesburg Pike, Suite 810, Falls Church, VA, 22041, within 30 days of receiving notice from DOD to do so.

14. The User understands and agrees that they may not reuse original or derivative data file(s) without prior written approval from the appropriate System Manager or the person designated in section 22 of this Agreement.

15. The parties mutually agree that the following specified Attachments are part of this Agreement:

    Estimating the Military Retirement Health Care Liability *(Draft) LMI Report*

16. The User agrees that in the event DOD determines or has a reasonable belief that the User has made or may have made disclosure of the aforesaid file(s) that is not authorized by this Agreement or other written authorization from the appropriate System Manager or the person designated in

item number 22 of this Agreement, DOD in its sole discretion may require the User to: (a) promptly investigate and report to DOD the User's determinations regarding any alleged or actual unauthorized disclosure, (b) promptly resolve any problems identified by the investigation; (c) if requested by DOD, submit a formal response to an allegation of unauthorized disclosure; (d) if requested by DOD, submit a corrective action plan with steps designed to prevent any future unauthorized disclosures; and (e) if requested by DOD, return data files to DOD. The User understands that as a result of DOD's determination or reasonable belief that unauthorized disclosures have taken place, DOD may refuse to release further DOD data to the User for a period of time to be determined by DOD.

17. The User hereby acknowledges that criminal penalties under § 1106(a) of the Social Security Act (42 U.S.C. § 1306(a)), including a fine not exceeding $1,000 or imprisonment not exceeding 5 years, or both, may apply with respect to any disclosure of information in the file(s) specified in section 7 that is inconsistent with the terms of this Agreement. The User further acknowledges that criminal penalties under the Privacy Act (5 U.S.C. § 552a(i) (3)) may apply if it is determined that the Requestor or Custodian, or any individual employed or affiliated therewith, knowingly and willfully obtained the file(s) under false pretenses. Any person found guilty under the Privacy Act shall be guilty of a misdemeanor and fined not more than $5,000. Further, the User acknowledges that criminal penalties may be imposed under 18 U.S.C. § 641, which provides that if it is determined that the User, or any individual employed or affiliated therewith, has taken or converted to his own use data file(s), or received the file(s) knowing that they were stolen or converted, they shall be fined under Title 18, imprisoned not more than 10 years, or both. In addition, the User and any individual employed or affiliated therewith, may be subject to civil suit under the Privacy Act for damages which occur as a result of willful or intentional actions which violate an individual's rights under the Privacy Act.

18. By signing this Agreement, the User agrees to abide by all provisions set out in this Agreement for protection of the data file(s) specified in section 7, and acknowledges having received notice of potential criminal, administrative, or civil penalties for violation of the terms of the Agreement.

19. On behalf of the User the undersigned individual hereby attests that he or she is authorized to enter into this Agreement and agrees to all the terms specified herein.

John A. Ciucci
(Name and Title of Individual - Typed or Printed)

Logistics Management Institute
(Company/Organization)

2000 Corporate Ridge
(Street Address)

McLean, VA 22102-7805
(City/State/ZIP Code)

Tel: 703-917-7228 E-Mail jciucci@lmi.org
(Phone No. - Including Area Code and e-mail Address, If Applicable)

_____
(Signature) (Date)

20. The Custodian(s), as named in paragraph 4, hereby acknowledges his/her appointment(s) as Custodian of the aforesaid file(s) on behalf of the User, and agrees personally and in a representative capacity to comply with all of the provisions of this Agreement on behalf of the User.

Melvin R. Etheridge, Jr.
(Typed or Printed Name and Title of Custodian of File(s)

_____
(Signature) (Date)

21. On behalf of _____ the undersigned individual hereby acknowledges that the aforesaid Federal agency sponsors or otherwise supports the User's request for and use of DOD data, agrees to support DOD in ensuring that the User maintains and uses DOD's data in accordance with the terms of this Agreement, and agrees further to make no statement to the User concerning the interpretation of the terms of this Agreement and to refer all question of such interpretation or compliance with the terms of this Agreement to the DOD official named in section 22 (or to his or her successor).

_____
(Typed or Printed Name and Title of Federal Representative)

_____
(Signature) (Date)

_____
(Phone No. - Including Area Code and e-mail Address, If Applicable)

22. On behalf of DOD the undersigned individual hereby attests that he or she is authorized to enter into this Agreement and agrees to all the terms specified herein.

Dr. Richard Guerin, Director of HPAE
(Typed or Printed Name and Title of DOD Representative)

(Signature) (Date)

23. The disclosure provision(s) that allows the discretionary release of DOD data for the purpose(s) stated in paragraph 6 follow(s). (To be completed by DOD staff.)

Appendix C
Abbreviations

APG	Ambulatory procedure group
AWU	Ambulatory workload unit
CHAMPUS	Civilian Health and Medical Program of the Uniformed Services
CHCS	Composite Health Care System
CPT	common procedural terminology
DEERS	Defense Eligibility Enrollment System
DMDC	Defense Manpower Data Center
DoD	Department of Defense
DUA	data use agreement
EM	evaluation and management
HCSR	Health Care Standard Record
HMO	healthcare maintenance organization
MEPRS	Medical Expense and Performance Reporting System
MilCon	Military Construction
MRHL	military retirement health care liability
MTF	military medical treatment facilities
NMOP	National Mail Order Pharmacy
OP	Other Procurement
PPO	Preferred provider organization
RWP	Relative Weighted Product
SADR	Standard Ambulatory Data Record
SSN	Social Security number
TMA	Tricare Management Activity
TMSSC	Tri-Service Medical Systems Support Center
UCA	Uniform Chart of Accounts
USAMISSA	U.S. Army Medical Information Service Support Activity
USFHP	Uniformed Services Family Health Program

REPORT DOCUMENTATION PAGE

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6. AUTHOR(S)
Etheridge, Melvin R.

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5e. TASK NUMBER
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Logistics Management Institute
2000 Corporate Ridge
McLean, VA 22102-7805

8. PERFORMING ORGANIZATION REPORT NUMBER
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9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
DoD Office of the Actuary
Mr. Joel Sitrin
1555 Wilson Blvd., Suite 701
Arlington, VA 22209

10. SPONSOR/MONITOR'S ACRONYM(S)

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12. DISTRIBUTION / AVAILABILITY STATEMENT
A Approved for public release; distribution is unlimited.

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The Department of Defense provides health care to retired military service members and their dependents and survivors. This care is provided directly at military medical treatment facilities (MTFs) and by care purchased from civilian providers in the Tricare program. DoD funds the benefit when it is delivered. The Chief Financial Officers Act of 1990 requires DoD to report the liability that has accrued for future benefits on the Department's annual financial statements. This liability is calculated by extrapolating current retired health care costs to the future retired population. Determining current costs is complicated by the fact that MTF accounting systems do not directly attribute a cost to each episode of care. This report describes the methodology used to identify the current exposed population and attribute annual total costs of care in each category to each eligible individual.

15. SUBJECT TERMS
military retirement health care, retirement health care liability, accrual accounting

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
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